WE CLAIM:

1. A cartridge for use in a medication pump, comprising:

a cylindrical barrel comprising an open end and a closed end, wherein the closed end defines an orifice; and

a plunger slidably received within the barrel, the plunger comprising a cylindrical wall having an interior cylindrical wall face, wherein a first tab projects inwardly from the interior wall face.

2. The cartridge of claim 1 wherein the plunger further comprises a second tab projecting inwardly from the interior wall face.

3. The cartridge of claim 1 further comprising a removable cartridge rod comprising a shaft and an interface cylinder at one end of the shaft, the interface cylinder defining a first channel for receiving and retaining the first tab of the plunger.

4. The cartridge of claim 3, wherein the first channel of the interface cylinder includes an axial portion disposed parallel to an axis of the shaft and a locking portion disposed in a circumferential direction around an outer surface of the interface cylinder.

5. The cartridge of claim 3, wherein a second tab projects inwardly from the interior wall face of the plunger and the interface cylinder defines a second channel for receiving and retaining the second tab of the plunger.

6. The cartridge of claim 5, wherein the second channel of the interface cylinder includes an axial portion disposed parallel to an axis of the shaft and a locking portion disposed in a circumferential direction around an outer surface of the interface cylinder.

7. The cartridge of claim 1 wherein the barrel further comprises axial guides at the closed end.

8. The cartridge of claim 1, further comprising a cylindrical end wall projecting from the closed end of the cylindrical barrel and surrounding the orifice, the end wall having an interior face and an exterior face.

9. The cartridge of claim 8 wherein the end wall further comprises axial guides on the exterior face of the end wall.

10. The cartridge of claim 9 wherein the end wall further comprises a thread structure on the interior face of the end wall.

11. The cartridge of claim 8 wherein the end wall further comprises a thread structure on the interior face of the end wall.

12. The cartridge of claim 1 wherein the barrel further comprises an exterior barrel wall face extending from the open end to the closed end, wherein the exterior barrel wall face is substantially smooth.

13. The cartridge of claim 1 wherein an outer edge of the open end of the cylindrical barrel defines a circle.

14. The cartridge of claim 13 wherein the open end of the barrel has an outer diameter that is substantially the same as an outer diameter of the remainder of the barrel wall.

15. The cartridge of claim 8 further comprising a tip at the closed end in fluid communication with the orifice.

16. A cartridge barrel for use in a medication pump comprising:

a cylindrical barrel wall comprising an open end and a closed end, wherein the closed end defines an orifice; and

a cylindrical end wall projecting from the closed end of the cylindrical barrel wall and surrounding the orifice, the end wall comprising an interior face, an exterior face, and axial guides on the exterior face.

17. The cartridge barrel of claim 16 wherein the end wall further comprises a thread structure on the interior face.

18. The cartridge barrel of claim 16 wherein the barrel wall is substantially smooth.

19. The cartridge barrel of claim 16 wherein an outer edge of the open end of the barrel wall defines a circle.

20. The cartridge of claim 16 wherein the open end of the barrel wall has an outer diameter that is substantially the same as an outer diameter of the remainder of the barrel wall.

21. The cartridge barrel of claim 16 further comprising a tip at the closed end within the end wall and in fluid communication with the orifice.

22. The cartridge barrel of claim 16 wherein the end wall has an outer diameter that is less than an outer diameter of the barrel wall.

23. A plunger for use within a medication cartridge in a medication pump, comprising:

a cylindrical plunger wall having an interior cylindrical wall face; and

a first tab projecting inwardly from the interior wall face.

24. The plunger of claim 23 further comprising a second tab projecting inwardly from the interior wall face positioned opposite the first tab.

25. A removable cartridge rod for use with a medical cartridge in a medical pump, comprising:

a shaft comprising an interface end and a handle end; and

an interface cylinder at the interface end defining a first channel, the first channel comprising an axial portion disposed parallel to an axis of the shaft and a locking portion disposed in a circumferential direction around an outer surface of the interface cylinder.

26. The cartridge rod of claim 25 wherein the interface cylinder further comprises a second channel for receiving and retaining a portion of a plunger, the second channel comprising an axial portion disposed parallel to the axis of the shaft and a locking portion disposed in a circumferential direction around the outer surface of the interface cylinder.

27. The cartridge rod of claim 26 wherein the axial portions of the first and second channels are positioned on opposite sides of the interface cylinder.

28. The cartridge rod of claim 25 further comprising a grasping flange at the handle end of the shaft.

29. A medication pump comprising:

a motor;

a cartridge chamber for receiving a medication cartridge, the chamber comprising a first open end for receiving the medication cartridge and a second end, the second end defining a drive rod opening;

a drive rod comprising an interface end, wherein the interface end of the drive rod extends into the cartridge chamber through the drive rod opening, wherein the drive

rod is configured to be axially moved by the motor, the drive rod comprising an interface structure at the interface end, the interface structure defining a first channel, the first channel comprising an axial portion disposed parallel to an axis of the drive rod and a locking portion disposed in a circumferential direction around an outer surface of the interface structure.

30. The medication pump of claim 29 further comprising a medication cartridge for loading in the cartridge chamber, the medication cartridge comprising:

a cylindrical barrel comprising an open end and a closed end, the closed end defining an orifice; and

a plunger slidably received in the barrel, the plunger comprising a cylindrical wall having an interior cylindrical wall face, wherein a first tab projects inwardly from the interior wall face.

31. The medication pump of claim 30 wherein the medication cartridge comprises axial guides at an exterior surface of the closed end.

32. The medication pump of claim 29 wherein the interface structure further defines a second channel comprising an axial portion disposed parallel to the axis of the drive rod and a locking portion disposed in a circumferential direction around the outer surface of the interface structure.

33. The medication pump of claim 32 further comprising a medication cartridge for loading in the cartridge chamber, the cartridge comprising:

a cylindrical barrel comprising an open end and a closed end, the closed end defining an orifice; and

a plunger slidably received in the barrel, the plunger comprising a cylindrical wall having an interior cylindrical wall face, wherein first and second tabs project inwardly from the interior wall face.

34. The medication pump of claim 29, wherein the interface structure of the drive rod comprises a visual indicator, wherein when the interface structure is coupled to a plunger, the visual indicator is positioned within the plunger, the pump further comprising an outer housing enclosing the motor, drive rod and cartridge chamber, wherein the outer housing comprises a window into the cartridge chamber.

35. The medication pump of claim 34 wherein the visual indicator comprises a dark colored portion of the interface structure.

36. The medication pump of claim 34 wherein the visual indicator comprises a bright colored portion of the interface structure.

37. The medication pump of claim 31 further comprising a pump cap configured to rotationally attach to the open end of the cartridge chamber to close the cartridge chamber, the pump cap having an interior surface comprising guides that engage the axial guides at the closed end of the medication cartridge, wherein when the pump cap is rotated into engagement with the open end of the cartridge chamber, the cartridge is rotated in a first direction to move the tab into the locking portion of the channel on the drive rod interface structure.

38. The medication pump of claim 37 wherein when the pump cap is rotated out of engagement with the open end of the cartridge chamber, the cartridge is rotated in a second direction opposite the first direction to move the tab into the axial portion of the channel on the drive rod interface structure.

39. A medication pump comprising:

a motor;

a cartridge chamber for receiving a medication cartridge, the chamber comprising a first open end for loading a medication chamber and a second end;

a drive rod comprising an interface end, wherein the interface end of the drive rod extends into the cartridge chamber through the second end of the cartridge chamber, wherein the drive rod is configured to be axially moved by the motor, the drive rod comprising an interface structure at the interface end, the interface structure comprising a visual indicator, wherein when the interface structure is coupled to a plunger of a medication cartridge, the visual indicator is positioned within the plunger; and

an outer housing enclosing the motor, cartridge chamber, and drive rod, wherein the outer housing comprises a window into the cartridge housing, the window allowing a view of the visual indicator.

40. The medication pump of claim 39 wherein the visual indicator comprises a dark colored portion of the interface structure.

41. The medication pump of claim 39 wherein the visual indicator comprises a bright colored portion of the interface structure.

42. A method of filling a medication cartridge with fluid, wherein the medication cartridge comprises a cylindrical barrel, a plunger received within the barrel, and a removable cartridge rod, wherein the cartridge rod comprises a shaft and an interface cylinder at one end of the shaft, the interface cylinder defining a first channel for receiving and retaining the first tab of the plunger, comprising:

attaching the rod to the plunger by inserting an interface end of the rod into an interior cylinder of the plunger axially and rotating the rod in a first direction so that a tab of the plunger is moved into a locking portion of a channel of the interface end of the rod;

retracting the plunger within the barrel by pulling on the rod to draw fluid into the barrel;

detaching the rod from the plunger by rotating the rod in a second direction opposite the first direction and withdrawing the rod from the interior cylinder of the plunger.

43. A method of locking a medication cartridge into a pump, wherein the medication cartridge comprises a cylindrical barrel and a plunger received within the barrel, the plunger comprising a first tab projecting inwardly from a cylindrical interior wall face, wherein the pump comprises a cartridge chamber for receiving a medication cartridge, and a drive rod configured to be axially moved comprising an interface structure, the interface structure defining a first channel, the first channel comprising an axial portion disposed parallel to an axis of the drive rod and a locking portion disposed in a circumferential direction around an outer surface of the interface structure, comprising:

inserting the cartridge axially into the cartridge chamber so that the tab of the plunger travels along the axial portion of the channel of the drive rod; and

rotating the cartridge in a first direction so that the tab travels along the locking portion of the channel in the drive rod.

44. The method of claim 43 wherein the medication cartridge further comprises axial guides at one end and wherein the pump further comprises a pump cap comprising an interior surface defining guides, further comprising:

rotating a pump cap in the first direction into attachment to an open end of the cartridge chamber, wherein the guides of the pump cap interact with the guides of the medication cartridge to cause the medication cartridge to rotate in the first direction.

45. The method of claim 44 further comprising rotating the pump cap in a second direction opposite the first direction out of attachment to the open end of the cartridge chamber, wherein the guides of the pump cap interact with the guides of the medication cartridge to cause the medication cartridge to rotate in the second direction.

46. The method of claim 43 further comprising filling the medication cartridge with medication before inserting it into the cartridge chamber, wherein the medication cartridge further comprises a removable cartridge rod, wherein the cartridge rod

comprises a shaft and an interface cylinder at one end of the shaft, the interface cylinder defining a first channel for receiving and retaining the first tab of the plunger, comprising:

attaching the rod to the plunger by inserting an interface end of the rod into an interior cylinder of the plunger axially and rotating the rod in a first direction so that a tab of the plunger is moved into a locking portion of a channel of the interface end of the rod;

retracting the plunger within the barrel by pulling on the rod to draw fluid into the barrel;

detaching the rod from the plunger by rotating the rod in a second direction opposite the first direction and withdrawing the rod from the interior cylinder of the plunger.

47. A medication cartridge for use in a medication pump comprising:

a cartridge barrel comprising an open end and a closed end, wherein the closed end defines an orifice, the cartridge barrel further comprising a cylindrical end wall projecting from the closed end and surrounding the orifice, the end wall comprising an interior face, an exterior face, and axial guides on the exterior face; and

a plunger slidably received within the barrel.

48. The medication cartridge of claim 47 wherein the plunger comprising a cylindrical wall having an interior cylindrical wall face, wherein a first tab projects inwardly from the interior wall face.

49. The medication cartridge of claim 48 further comprising a removable cartridge rod comprising a shaft and an interface cylinder at one end of the shaft, the interface cylinder defining a first channel for receiving and retaining the first tab of the plunger.

50. The medication cartridge of claim 49, wherein the first channel of the interface cylinder includes an axial portion disposed parallel to an axis of the shaft and a locking

portion disposed in a circumferential direction around an outer surface of the interface cylinder.

51. The medication cartridge of claim 47 wherein the end wall further comprises a thread structure on the interior face of the end wall.

52. A medication pump system comprising:

a motor;

a cartridge chamber for receiving a medication cartridge, the chamber comprising a first open end for receiving the medication cartridge and a second end, the second end defining a drive rod opening;

a drive rod comprising an interface end, wherein the interface end of the drive rod extends into the cartridge chamber through the drive rod opening, wherein the drive rod is configured to be axially moved by the motor, the drive rod comprising an interface structure at the interface end;

a pump cap for rotationally attaching to the open end of the cartridge chamber to close the cartridge chamber, the pump cap comprising guides located on an interior surface that engage axial guides at a closed end of a medication cartridge, wherein when the pump cap is rotated into engagement with the open end of the cartridge chamber, the cartridge is rotated into engagement with the interface structure of the drive rod.

53. The medication pump system of claim 52 further comprising a medication cartridge for loading in the cartridge chamber, the medication cartridge comprising:

a cylindrical barrel comprising an open end and a closed end, the closed end defining an orifice;

a plunger slidably received in the barrel, the plunger configured to connect to the interface structure of the drive rod; and

axial guides at an exterior surface of the closed end.

54. A method of locking a medication cartridge into a pump, wherein the medication cartridge comprises a cylindrical barrel, a plunger received within the barrel, and axial guides at an exterior surface of a closed end, wherein the pump comprises a cartridge chamber for receiving a medication cartridge and a drive rod configured to be axially moved comprising an interface structure, the interface structure configured to attach to the plunger, wherein the pump further comprises a cap for rotationally attaching to an open end of the cartridge chamber, the cap comprising guides on an interior surface, the method comprising:

inserting the cartridge axially into the cartridge chamber; and

rotating the cap in a first direction into engagement with the open end of the cartridge chamber, wherein the guides on the interior surface of the pump cap interact with the axial guides of the cartridge so that the cartridge is rotated, whereby the plunger is rotated into engagement with the drive rod.

55. The method of claim 54 further comprising rotating the pump cap in a second direction opposite the first direction out of attachment to the open end of the cartridge chamber, wherein the guides of the pump cap interact with the guides of the medication cartridge to cause the medication cartridge to rotate in the second direction, whereby the plunger is rotated out of engagement with the drive rod.